

REMARKS

Status

This Amendment is responsive to the Office Action dated February 22, 2008, in which Claims 1-29 were rejected. Claims 1, 2, 4-6, 11, 12, 20, 21, 27 and 29 have been amended; and new Claim 30 has been added. Accordingly, Claims 1-30 are pending in the application, and are presented for reconsideration and allowance.

Claim Objections

Claims 2-10, 12-14, 16, 20 and 21 have been objected to for informalities. The claims have been amended to address the objections and withdrawal thereof is requested.

Claim Rejection - 35 USC 103

Claims 1-29 stand rejected under 35 USC 103 as being unpatentable over US Patent No. 6,608,942 (Le), with US Patent Appl. No. 2003/00232150 (Yokoi) over US Patent No. 6,259,807 (Ravkin). This rejection is respectfully traversed.

As discussed with the Examiner in a telephone conversation on about April 25, 2008, the Examiner has not addressed previously presented arguments about "detecting low brightness areas where light rays are unable to reach directly in certain anatomical structures in the in vivo images" and "preserving a shape of the anatomical structures" on page 9 of the prior filed amendment as he says nothing about it. In a continuation of this conversation, the Examiner asserted that low brightness is a relative term and indefinite, and also asserted that the preserving of the anatomical structure is inherent in any image taken of a person.

With respect to the low brightness issue the claims have been amended.

With respect the inherency issue, this is not the case. In particular, preserving in a low brightness area of an image is not inherent.

The Examiner is requested to note that Claim 1, for example, calls for two operations with respect to light levels. The first is associated with areas

where light rays are unable to reach directly and the other is for other areas where there is under exposure.

What the present invention of Claim 1 is about is finding low brightness areas caused by anatomical structures such as crease features in in vivo images (in page 8, line 29 to page 9, lines 3: "Note that image I_B 702 displays exemplary one-valued regions 706 indicating the corresponding low brightness areas in image I (501) caused by crease features where light rays are unable to reach directly in certain anatomical structures of the GI tract.""). In those areas, there is a need to "keep the darkness" in those areas so as to preserve the shape of the structure for diagnosis purposes. However, for other low brightness areas that caused by low photon energy, there is a need to adjust the brightness to make the areas more visible also for better diagnosis. Imagine the following scenario: the camera travels along the GI tract (basically, a tube like object), the LED lighting source has limited power. So the GI tract wall (tube wall) near the camera receives more lighting energy (so looks brighter) than the wall farther away from the camera. See, page 8, lines 2-6, "Thus, in an ideal case, an in vivo image should not present significant brightness differences in different areas. In reality, because of the uneven photon flux field generated by the limited lighting source, under exposure areas (low brightness areas) exist. Those low brightness areas need to be corrected to become brighter." The need is to preserve shape while also improving brightness.

These two features are emphasized in Claim 1 by "c) preserving a shape of the anatomical structures in the areas where light rays are unable to reach directly in certain anatomical structures in the in vivo images; and d) adjusting exposure of the in vivo images in other areas due to under exposure while preserving the shape of the anatomical structures." It is submitted Le, Yokoi and Ravkin do not teach or suggest such.

Claims 11, 27 and 29 also emphasize the above discussed features.

Withdrawal of the rejection of Claims 1, 11, 27 and 29 is requested.

The dependent claims depend from the above-discussed independent claims and are patentable over the prior art for the reasons discussed above. The dependent claims also recite additional features not taught or suggested by the prior art. With respect to the Examiners argument about Ravkin

and Claim 2 (see action page 4), the portions of Ravkin pointed to by the Examiner do not teach both "gathering image statistics with mask A" and "adjusting image exposure with mask B and the gathered statistics of mask A." In particular, Ravkin does not teach gathering statistics, such as the mean, median, minimum and maximum intensity. Withdrawal of the rejection of Claim 2 is requested.

It is submitted that the dependent claims are independently patentable over the prior art.


New Claim 30 emphasizes preserving the shape of the diagnostically important anatomical structures by eliminating image clusters that are not part of diagnostically important anatomical structures. Nothing in the prior art teaches or suggests such. It is submitted that this new claim distinguishes over the prior art.

Summary

Should the Examiner consider that additional amendments are necessary to place the application in condition for allowance, the favor is requested of a telephone call to the undersigned counsel for the purpose of discussing such amendments.

For the reasons set forth above, it is believed that the application is in condition for allowance. Accordingly, reconsideration and favorable action are respectfully solicited.

Respectfully submitted,


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If the Examiner is unable to reach the Applicant(s) Attorney at the telephone number provided, the Examiner is requested to communicate with Carestream Health, Inc. at 585/627-6687 or 585/627-6740.